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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,428

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Estill Thone Hall JR.

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EXAMINER

HOWARD, RYAN D

ART UNIT

PAPER NUMBER

2851

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,428	Applicant(s) HALL ET AL.	
	Examiner RYAN HOWARD	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/20/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Acknowledgement made of amendment filed 2/20/2009.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.** The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract contains the legal phraseology "comprising". Correction is required. See MPEP § 608.01(b).

Comprising can be changed to the word "including".

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features from claims 2, 9, and 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

Art Unit: 2851

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5-10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl et al. (US 6,661,475 B1), in view of O'Connor et al. (US 6,962,424 B2).

Regarding claims 1 and 6, Stahl teaches a lamp providing randomly polarized light (14, figure 2);

Art Unit: 2851

An integrator (16, figure 2) for directing light from the lamp along an axis of the integrator;

and an LCOS (column 1 lines 8-11; 26₁₋₃ figure 2) imager for modulating the polarized light from the integrator on a pixel-by pixel basis (column 6 lines 48-50) responsive to a video signal to form a video image.

Stahl does not teach a wire-grid polarizer disposed at a first end of the integrator; wherein the wire-grid polarizer transmit light of a first polarization and reflects light of a second polarization back to the lamp and wherein the lamp rotates and reflects the polarization of the light of the second polarization such that the reflected light is directed back to the integrator and transmitted through the wire-grid polarizer.

O'Connor teaches a wire-grid polarizer disposed at a first end of the integrator (18, figure 2; column 1 lines 49-53); wherein the wire-grid polarizer transmit light of a first polarization (L_{parallel} , figure 2) and reflects light of a second polarization ($L_{\text{orthogonal}}$, figure 2) back to the lamp and wherein the lamp rotates and reflects the polarization of the light of the second polarization (26, figure 2) such that the reflected light is directed back to the integrator and transmitted through the wire-grid polarizer (figure 2).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Stahl to include the polarization system of O'Conner because the polarization system of O'Conner increases the output intensity of the projection system (column 1 lines 15-24).

Regarding claim 2 and 10, Stahl does not teach the wire-grid polarizer is disposed at a light input end of the integrator.

Art Unit: 2851

O'Conner teaches the wire-grid polarizer disposed immediately after a light source. Upon modifying the projection system of Stahl to include the polarization system of O'Conner, the wire-grid polarizer would be disposed at the light input end of the integrator.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Stahl to include the polarization system of O'Conner because the polarization system of O'Conner increases the output intensity of the projection system (column 1 lines 15-24).

Regarding claims 5 and 14, Stahl teaches the second end of the integrator is free of any polarization means (column 7 lines 60-65).

Regarding claim 7, Stahl teaches the light engine further comprising a clean-up polarization means (40, figure 2) disposed between the wire-grid polarizer and the LCOS imager.

Regarding claim 8, Stahl teaches the clean-up polarization means is a polarizing beam splitter (column 8 line 1).

Regarding claim 9, Stahl teaches the clean-up polarization means is a linear polarizer (40, figure 2). The beam splitter is selectively filtering between two linear polarization states, therefore, a linear polarizer.

7. Claims 3, 11, and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl in view of O'Conner as applied to claims 1 and 6 above, and further in view of Sharp et al. (US 7,083,282 B1).

Regarding claims 3 and 11, Stahl in view of O'Conner does not teach the wire grid polarizer is disposed at a light output end of the integrator.

Sharp teaches a wire grid polarizer (column 3 lines 14-16) is disposed at a light output end of the integrator (214, figure 3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Stahl in view of O'Conner to further include the polarization system of Sharp because the polarization system of Sharp improves light utilization efficiency (column 1 line 64 - column 2 line 5).

Regarding claim 12, Stahl in view of O'Conner does not teach the wire-grid polarizer is about the side of the output end of the integrator.

Sharp teaches the wire-grid polarizer is about the size of the output end of the integrator (214, figure 3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Stahl in view of O'Conner to further include the polarization system of Sharp because the polarization system of Sharp improves light utilization efficiency (column 1 line 64 - column 2 line 5).

8. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahl in view of O'Conner as applied to claims 1 and 6 above, and further in view of Fukushima et al. (US 2003/0094899 A1).

Regarding claims 4 and 13, Stahl teaches the lamp is an arc lamp with an elliptical reflector (column 5 lines 28-29).

Stahl in view of O'Conner does not specify that the arc lamp is a mercury lamp.

Fukushima teaches a mercury arc lamp (paragraph 0036).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the projection system of Stahl in view of O'Conner to include the mercury arc lamp of Fukushima because the mercury arc lamp of Fukushima improves brightness (paragraph 0011).

Response to Arguments

9. Applicants' arguments filed 2/20/2009 have been fully considered but they are not persuasive.

Regarding Applicants' arguments that O'Conner does not teach a polarized light source including a lamp, an integrator and a wire grid polarizer (Arguments: page 10 line 24 – page 11 line 13), Examiner respectfully disagrees. O'Conner is not being used to teach an integrator, as this feature belongs to the primary reference. Regarding the polarized light source including a lamp and a wire grid polarizer, O'Conner teaches in figure 2 a light source (14, 12, 26) producing polarized light emitting toward a wire grid polarizer (18) such that one polarization direction passes through and the other is reflected back to the light source, rotated and reflected back toward the wire-grid polarizer and transmitted there through.

Applicant's arguments with respect to claims 1, 3-8, and 11-14 (page 6-8) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN HOWARD whose telephone number is (571)270-5358. The examiner can normally be reached on Monday-Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Dowling/
Primary Examiner, Art Unit 2851

/RYAN HOWARD/
Examiner, Art Unit 2851
6/4/2009